Comment Submission
Federal Communication Commission
ET Docket Nos. 03–137 and 13–84; FCC 13–39

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Subject: Non-thermal biological effects of non-ionizing radiation (NOI #65, 66)

Reference: "Exposure to cell phone radiation up-regulates apoptosis genes in primary cultures of neurons and astrocytes" (Zhao, Zou, Knapp; Science Digest Neuroscience Letters, 412, p34–38; 2007)

Comment:

Cell phone use poses health concerns mainly due to non-thermal effects of the low intensity radiofrequency and microwave (RF/MW) they give off close to the user's brain. Past research has been contradictory regarding the effects of RF/MW exposure on human health, but generally accepts that RF/MW can effect specific genes and proteins in cells.

In this study, cell phones were placed on top of petri dishes containing neurons from mice. Some phones were turned on and others were put in "stand-by" mode. The expression of genes related to apoptosis were monitored using array analysis. The results showed that neurons exposed to cell phones in "on" mode for 2 hours showed the number of genes whose expression was up-regulated, with the expression of the majority of the genes remaining unchanged. The genes that were effected included three that contribute to apoptosis. These three genes behaved similarly in the neurons exposed to a cell phone in "stand-by" mode.

These results suggest that short term exposure to RF/MW radiation from a cell phone can cause cellular DNA damage by activating genes that initiate apoptois, a cellular suicide mechanism that normally occurs during the development or in response to injury or disease.